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LISTS OF SPECIES

Checklist of Lizards of the Juruti, state of Pará, Brazil

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ABSTRACT: We present the first lizard species list for the municipality of Juruti, state of Pará, Brazil. The list was drawn up as a result of data obtained from specimens deposited in the Herpetological Collection of the Museu Paraense Emílio Goeldi and from inventories conducted in 2008-2011. Sampling methods included pitfall traps with drift fences and time constrained searches. We considered the data collected by other researchers, incidental encounters and records of dead individuals on the road. We recorded 33 species, 26 genera and ten families. *Norops tandai* was the most abundant species. Compared with the other regions of Amazonia, the region of Juruti presented a large number of lizards. However, further studies with an increase in the sampling effort, could prove this area to be richer in lizards than that observed so far.

INTRODUCTION

The Amazon rainforest is one of the world's biomes that exhibits high biological diversity and complexity of environments (Duellman 1978). Of the more than six million km^2 estimated to be the current total area of the Amazon, about 60% are in Brazilian territory (Capobianco *et al*. 2001), giving it the status of the largest and most diverse rainforest in the world (Silva *et al.* 2005).

The call for information on Amazonian fauna is undisputed among researchers; however, lack of knowledge is mainly related to low sampling (Vivo 1996; Silva Jr. 1998) and insufficient collection. For amphibians and reptiles, this scenario is no different. According to Ávila-Pires *et al*. (2010), due to the large extension of the Amazon region, the herpetofauna has not yet been identified completely, particularly for some groups of reptiles.

The richness of the lizard fauna of the Brazilian Amazon, although it is not fully known, is one of the highest amongst the Brazilian biomes (Rodrigues 2005). Of the 248 species of lizards present in Brazil (Bérnils and Costa 2012), 94 species are recorded in the Brazilian Amazon, which corresponds to 72% of all known species for the whole Amazon region (Ávila-Pires *et al.* 2007). This number grows each year due to studies and faunal inventories, which provide material for further and ongoing descriptions of Amazonian species (Ávila-Pires *et al*. 2007).

Among the main studies that list the composition of the Amazonian lizard fauna, the following can be highlighted: in the state of Amazonas, the studies of Martins (1991) in the region of Balbina (20 species), Duellman (1990) and Vitt *et al*. (2008) in the Manaus region (34 species), Ávila-Pires *et al*. (2009) in the Rio Ituxi (26 species), Ilha and Dixo (2010) in the municipality of Rio Preto da Eva (20 species), and Pantoja and Fraga (2012) in the Extractive Reserve of Rio Gregorio (15 species); in the state of Pará the work of Cunha *et al*. (1985) and Nascimento *et al*. (1987) in the Carajás area (25 species), Ávila-Pires and Hoogmoed (1997) and Bernardi *et al*. (2002) in the Caxiuanã National Forest (28 species), Gardner *et al*. (2007) in the municipality of Monte Dourado (30 species), Ávila-Pires *et al*. (2009) in the Curuá-Una (22 species), Mendes-Pinto and Souza (2011) in the National Forest of Trairão (23 species), Silva *et al*. (2011) in the region of Barcarena (17 species) and Bernardo *et al*. (2012) in Tapirapé Biological Reserve (14 species); in the state of Rondônia, Macedo *et al*. (2008) in the municipality of Espigão do Oeste (29 species) and Ávila-Pires *et al*. (2009) in Guajará-Mirim State Park (23 species); and in the state of Acre, the studies of Ávila-Pires *et al*. (2009) in Porto Walter (29 species) and Bernarde *et al.* (2011) in the Extractive Reserve of Riozinho da Liberdade (29 species).

Located south of the Amazon River, state of Para, Brazil, the municipality of Juruti presents preserved tropical rainforest, with some areas destined for the exploration of bauxite. Herein, we present a list of lizard species for this region, based on fieldwork and collection data.

MATERIALS AND METHODS

Study area

The activities were developed in the Area under the Influence of the Project Juruti/Alcoa, in the west of the state of Pará, Brazil (02°09'09"S; 56°05'42"W) (Figure 1). The vegetation of the area is classified as dense ombrophilous forest, with lattosoil type Dystrophic Oxisol (MCT 2008). The climate is classified as AMw following Köppen's system (Kottek *et al*. 2006), which is characterized by a dry season of short duration, with annual rainfall between 2000 and 2250 mm/year. The mean annual temperature is 26°C and humidity is above 80% (MCT 2008).

Data Collection

To compose the list of lizard species in the region, we used data from expeditions conducted from 2008 to 2011 and from the material deposited in the herpetological collection of the Museu Paraense Emílio Goeldi (MPEG).

Eight expeditions were conducted, totaling 123 days, in the following years: 2008 (17 February to 3 March - 17 to 26 March, 1 to 21 December, in the rainy season), 2009 (19

to 28 January - 13 to 29 May, in the rainy season), 2010 (15 to 30 July -15 to 30 September, in the dry season) and 2011 (15 to 30 January, in the rainy season).

Collections were conducted in six areas with different phytophysiognomies and degrees of environmental disturbance (Figure 2), and located in the "Area under the Influence of the Juruti Project", municipality of Juruti, state of Pará, Brazil (Figure 1).

For descriptions of the areas were considered as characteristic of the vegetation circumference at breast height (CBH) and litter depth. For inferences of CBH trees were defined plots of 100m^2 (10 x 10), randomly chosen and set next to each trap, totaling six plots at each collection point (600 m^2). All the individuals with circumference at breast height (CBH) ≥ 15cm were sampled. The depth of litter was measured within the same plots where the CBH were measured (five measurements per plot) using a millimeter ruler.

The six study areas are described below:

A) *Barroso* (02°28'18"S, 56°00'44"W): An area formed by dense ombrophilous to submontane forest (MCT 2008), which has streams (igarapés) with vegetation consisting of palm trees (*Socratea* spp., *Mauritia* sp., *Oenocarpus* sp. and *Astrocaryum* sp.), large trees reaching 35m in height (Santos *et al*. 2011), and CBH above 400cm (n= 92; mean of 57.5cm), with a leaf litter layer up to 14cm deep (n= 30; mean of 11.4cm) (Figure 2A). This area is barely impacted, with absence of artificial clearings, subsistence hunting activities or paved roads. These features make this area one of the most preserved among the areas studied. The collections in this area were performed only in the years 2010 and 2011.

B) *Capiranga* (02°28'57"S, 56°09'41"W): An area formed by dense ombrophilous to submontane forest (MCT 2008), with primary forest consisting of large trees with height reaching 40m (Santos *et al*. 2011), and CBH above 390cm (n= 93; mean of 50.8cm), with a leaf litter layer up to 13cm deep (n= 30; mean of 10.8cm) (Figure 2B). Paved roads and ramifications are present in this area with moderate flow of vehicles. Although it is a preserved area, logging and population growth of the communities in its surroundings cause this area to be under great potential risk of degradation. The collections in this area were performed only in the 2008 to 2011.

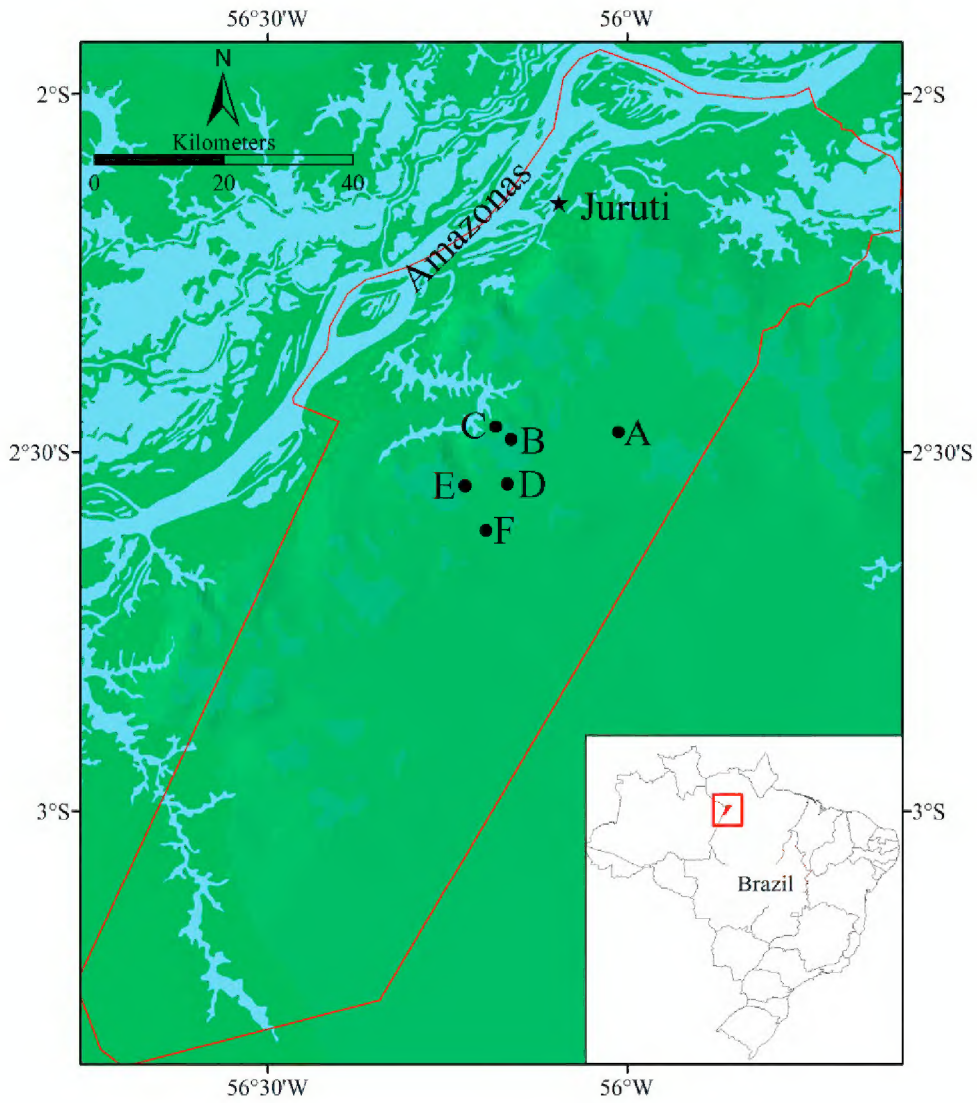

Figure 1. Location of the study area (in red) with their collections sites: (A) Barroso; (B) Capiranga; (C) Adutora; (D) Pacoval; (E) Galiléia; (F) Mutum.

C) *Adutora* (02°27'51"S, 56°10'59"W): An area formed by dense ombrophilous to submontane forest (MCT 2008), with secondary forest vegetation and the presence of igarapés and large artificial clearings formed by the extraction of timber. There are many palms and vines, maximum depth of leaf litter is 6.2cm (n= 30; mean of 5.8cm), and trees have a height of 35m (Santos *et al*. 2011), CBH above 92cm (n= 84; mean of 25cm) (Figure 2C). Timber extraction and a large flow of vehicles make this area the most impacted with large anthropic disturbance. The collections in this area were performed only in the years 2008 to 2011.

D) *Pacoval* (02°32'40"S; 56°10'02"W): An area formed by dense ombrophilous to submontane forest (MCT 2008). Presence of secondary forest (Figure 2E), with large numbers of trumpet trees (*Cecropia* spp.), leaf litter with maximum depth of 8cm (n= 30; mean of 59cm), trees with height of 35m (Santos *et al*. 2011) CBH above 102cm (n= 79; mean of 29cm). This area is crossed by a road that gives access to various private properties, where logging and subsistence hunting occur. The collections in this area were performed only in the years 2008 to 2010.

E) *Galiléia* (02°32'51"S; 56°13'32"W): An area formed by dense ombrophilous to submontane forest (MCT 2008), with secondary forest located on flat terrain. Trumpet trees (*Cecropia* spp.) are present, maximum depth of leaf litter is 8cm (n= 30; mean of 7.0cm) and trees have a CBH of 185cm (n= 82; mean of 27cm) (Figure 2D). This area shows great human disturbance caused by the large movement of vehicles and by logging. The collections in this area were performed only in the years 2008 to 2011.

F) *Mutum* (02°36'34"S; 56°11'46"W): An area formed by dense ombrophilous to submontane forest (MCT 2008). It features well-preserved primary forest, with the presence of streams (igarapés) and vegetation consisting of palm trees (*Socratea* sp.1, *Socratea* sp.2, *Mauritia* sp., *Oenocarpus* sp. and *Astrocaryum* sp.), large trees above 30m in height (Santos *et al*. 2011), and CBH of 432 (n = 95; mean of 62cm) and 14cm of leaf litter (n= 30; mean of 12cm). This is the most preserved area of primary forest studied (Figure 2F). It is likely that the good conservation of the area is related to the difficulty of access, which is made by an abandoned secondary road. The collections in this area were performed only in the 2008 to 2011.

The habitats were classified using the following categories: Primary Forest (PF), with a predominance of trees of medium to large size and without significant human disturbance; Secondary forest (SF), with some degree of disturbance and impact primarily caused by logging, with few large trees; Igarapé (IG), represented by riparian vegetation present along watercourses in lowland areas; and Disturbed area (DA), deforested areas for building roads, railroads or other structures present in

the Area under the Influence of Juruti Project (Figure 2).

We used two collection methods: Pitfall Traps (PFT) (Cechin and Martins 2000; Foster 2012) and Time Constrained Search (TCS) (Martins and Oliveira 1999). Specimens recorded through Incidental Encounters (IE), run over on roads (Road) and collected by third parties (CTP) were also considered.

The PFT were installed in the five areas (A, B, C, E and F) being arranged in a "Y" shape, 100m to 300m from one another, six trap stations were installed in each area. Each trap station consisted of four 35L buckets connected together by a drift fence, placed 10m from one another. Drift fences were buried approximately 15cm deep and were kept upright with wooden stakes that passed through the center of the buckets. Traps were checked daily during the sampling periods. The sampling effort was 7080 buckets/day (24 buckets x 5 areas x 59 days).

The time constrained search (TCS) was performed in the six areas (A-F), for four hours per expedition in each area (two during the day and two at night), with a staff of four people. The sampling effort per area was 128 hours-man (16 hours-man/day x eight expeditions).

The combined use of these methods aided in the compilation of a representative sample for the region, considering that they are complementary methods and access different faunas (Ávila-Pires *et al.* 2007; Maschio *et al.* 2009; Foster 2012).

The collecting and transportation of the material were made under proper authorization by IBAMA (process N° 063/07; 073/08; 020/09; 011/10; 25/10). All material collected in this study is deposited in the Herpetological collection of MPEG (see Appendix). The nomenclature used herein followed the list of species for Brazilian reptiles by Bérnils and Costa (2012), considering the recent changes proposed by Gamble *et al.* (2011) for the genus *Coleodactylus*, Hedges and Conn (2012) for the genus *Mabuya* and Nicholson *et al*. (2012) for the genus *Anolis*.

Results and Discussion

A total of 33 species (n= 622) of lizards were collected in the municipality of Juruti, state of Pará, belonging to 26 genera and ten families (Table 1, Figures 3 and 4). Gymnophthalmidae, with eight species (25% of the total species) was the family with highest species richness, followed by Teiidae, with six species (18% of the total species), Sphaerodactylidae with five species (15% of the total species), Dactyloidae and Tropiduridae with four species (12% of the total species) and Mabuyidae with two species (6% of the total species). In the families Gekkonidae, Iguanidae, Phyllodactylidae and Polychrotidae only one species was recorded (Table 1).

Figure 2. Environments sampled in the study area in the municipality of Juruti, State of Pará: (A) Igarapé, (B) Primary forest, (C) Secondary forest, (D) Disturbed area.

Table 1. Lizards recorded in municipality of Juruti, west of Pará, Brazil. Collection sites: B= Barroso; C= Capiranga; A= Adutora; G= Galiléia; P= Pacoval; M= Mutum; R= Road, S= Surroundings. Methods Collection: PFT= Pitfall traps; TCS= Time Constrained Search; FR= Fauna Rescue; IE= Incidental Encounters. Habitats: PF= Primary Forest; SF= Secondary Forest; IG= Igarape; DA= Disturbed Area.

SPECIES	LOCALITY	METHODS COLLECTION	HABITAT	THIS STUDY	DATA COLLECTION (MPEG)
DACTYLOIDAE					
Norops fuscoauratus (D´Orbigny, 1837)	A, B, C, G, M, P, S, R	PFT, TCS, IE, FR	PF, SF, DA, IG	28	42
Norops tandai (Ávila-Pires, 1995)	A, B, C, G, M, P, R, S	PFT, TCS, IE	PF, SF, DA, IG	59	26
Norops ortonii (Cope, 1869)	M, R, S	TCS, IE, FR	PF, DA	2	7
Dactyloa punctata (Daudin, 1802)	A, C, G, P, M, B, R, S	PFT, TCS, IE, FR	PF, SF, DA, IG	7	13
GEKKONIDAE					
Hemidactylus mabouia (Moreau de Jonnès, 1818)	C	IE	DA		1
GYMNOPHTHALMIDAE					
Alopoglossus angulatus (Linnaeus, 1758)	A, M	TCS, IE	PF, IG	4	1
Arthrosaura reticulata (O´Shaughnessy, 1881)	B, C, M, R	IE, PFT, FR	PF, SF, DA, IG	1	4
Bachia flavescens (Bonnaterre, 1789)	C, M, R, S	PFT, TCS, FR	PF, SF, DA, IG	2	3
Cercosaura sp.	A, B, C, G, P,M, R, S	PFT, IE, TCS, FR	PF, SF, DA	10	31
Iphisa elegans Gray, 1851	A, B, G, M	PFT, IE, TCS	PF, SF	8	8
Leposoma osvaldoi Ávila-Pires, 2005	A, B, C, M, P, S	PFT, TCS	PF, SF, DA, IG	8	15
Leposoma percarinatum (Müller, 1923)	C, M, S	TCS, PFT	PF, SF, IG		7
Ptychoglossus brevifrontalis Boulenger, 1912	M	PFT	PF	1	
IGUANIDAE					
Iguana iguana (Linnaeus, 1758)	C, R	TCS, IE	DA		2
PHYLLODACTYLIDAE					
Thecadactylus rapicauda (Houttuyn, 1782)	A, G, M, S	PFT, TCS, IE, FR	PF, SF, DA, IG	7	3
POLYCHROTIDAE					
Polychrus marmoratus (Linnaeus, 1758)	R	FR	DA		2
MABUYIDAE					
Varzea bistriata (Spix, 1825)	S	TCS	DA		1
Copeoglossum nigropunctatum (Spix, 1825)	A, C, G, P, M, B, S, R	PFT, TCS, IE	PF, SF, DA, IG	18	20
SPHAERODACTYLIDAE					
Chatogekko amazonicus (Andersson, 1918)	A, B, C, G, M, P, S, R	PFT, TCS, IE, FR	PF, SF, DA, IG	37	29
Gonatodes hasemani Griffin, 1917	M, S	PFT	PF	1	2
Gonatodes humeralis (Guichenot, 1855)	A, B, C, G, M, P, S, R	PFT, TCS, IE	PF, SF, DA, IG	39	37
Lepidoblepharis heyerorum Vanzolini, 1978	B, C, M	TCS, PFT	PF, SF		6
Pseudogonatodes guianensis Parker, 1935	B, C, G, M, S	IE, PFT, FR	PF, SF, DA	8	6
TEIIDAE					
Ameiva ameiva (Linnaeus, 1758)	A, B, C, G, S, M	TCS, PFT, IE	PF, SF, DA	13	8
Crocodilurus amazonicus Spix, 1825	S	IE	IG	1	
Kentropyx altamazonica Cope, 1876	S	TCS	PF, DA		2
Kentropyx calcarata Spix, 1825	A, C, P, M, B, S	PFT, TCS, IE, FR	PF, SF, DA	19	26
Tupinambis longilineus Ávila-Pires, 1995	S, R	FR	DA		2
Tupinambis teguixin (Linnaeus, 1758)	M, R	TCS, FR	PF, DA		2
TROPIDURIDAE					
Plica plica (Linnaeus, 1758)	A, B, G, M	PFT, TCS	PF, SF, IG	5	9
Plica umbra ochrocollaris (Spix, 1825)	C, G, M, S	PFT, IE, FR	PF, SF, DA	8	7
Uracentron azureum (Linnaeus, 1758)	C, S	PFT, FR	SF, DA	1	1
Uranoscodon superciliosus (Linnaeus, 1758)	A, B	TCS	IG	11	1
TOTAL				**298**	**324**

Norops tandai (n= 85), *Gonatodes humeralis* (n= 76), *N. fuscoauratus* (n= 70) and *Chatogekko amazonicus* (n= 66) were the most abundant species, being recorded in the six areas and the four types of habitat studied (Table 1).

Norops tandai is usually found in *terra firme* primary forest and, occasionally, in marginally disturbed areas. It is present south of the Amazon River (Ávila-Pires 1995, D'Angiolella *et al.* 2011). *Gonatodes humeralis* is considered one of the most common species in the Amazon and may occupy *terra firme* forests, primary or secondary, floodplain or wetland environments, plus gallery forests and savannas. It is a diurnal and arboreal species, which uses tree trunks both inside forests and on the edge of forests (Avila-Pires 1995; Vitt *et al.* 1997). *Norops fuscoauratus* is an arboreal and diurnal species that can be found in both primary and secondary forests. It is present in the north of South America, east of the Andes, in the following countries: Brazil, French Guiana, Suriname, Guyana, Venezuela, Colombia, Ecuador, Peru and Bolivia (Duellman 1978, 1990; Vitt 1991; Ávila-Pires 1995; Vitt *et al.* 2008). *Chatogekko amazonicus* is a diurnal species that inhabits the leaf litter of primary and secondary *terra firme* forests and can occasionally be found in lowland areas. Its distribution comprises eastern and central

Amazonia, including Brazil, French Guiana, Suriname, southern Guyana and southern Venezuela (Ávila-Pires 1995). The species *Chatogekko amazonicus, Gonatodes humeralis, Ameiva ameiva* e *Kentropyx calcarata* are widely distributed, occurring in different areas of the Brazilian Amazon (Cunha *et al*. 1985; Duellman 1990; Martins 1991; Ávila-Pires and Hoogmoed 1997; Bernardi *et al.* 2002; Macedo *et al*. 2008; Vitt *et al*. 2008; Ilha and Dixo 2010; Ávila-Pires *et al*. 2010; Silva *et al.* 2011; Bernardo *et al*. 2012) (Table 2). However, according Geurgas and Rodrigues (2010), there are molecular evidences that *C. amazonicus* may represent several distinct species.

Figure 3. Some species of lizards recorded in the municipality of Juruti, State of Pará: (A) *Norops tandai*; (B) *Gonatodes humeralis*; (C) *Norops fuscoauratus*; (D) *Chatogekko amazonicus*; (E) *Uracentron azureum*; (F) *Ameiva ameiva*; (G) *Uranoscodon superciliosus*; (H) *Pseudogonatodes guianensis*.

About 30% of lizard species recorded in the Juruti region, occurred in the four habitat types (PF, SF, DA and IG). Most species were recorded both in primary forest (75%) and in disturbed areas (73%). In secondary forest environments and streams (igarapés), this percentage was lower (58% and 45%, respectively) (Table 1).

Among the methods used, the TCS recorded the highest number of specimens (n = 23, with three unique species), followed by PFT (n= 22, two exclusive species) and IE (n= 18, two exclusive species). The number of species collected in the dry season (20 spp.) was similar to that recorded in the rainy season (22 spp.), although the sampling effort has been small in the dry season.

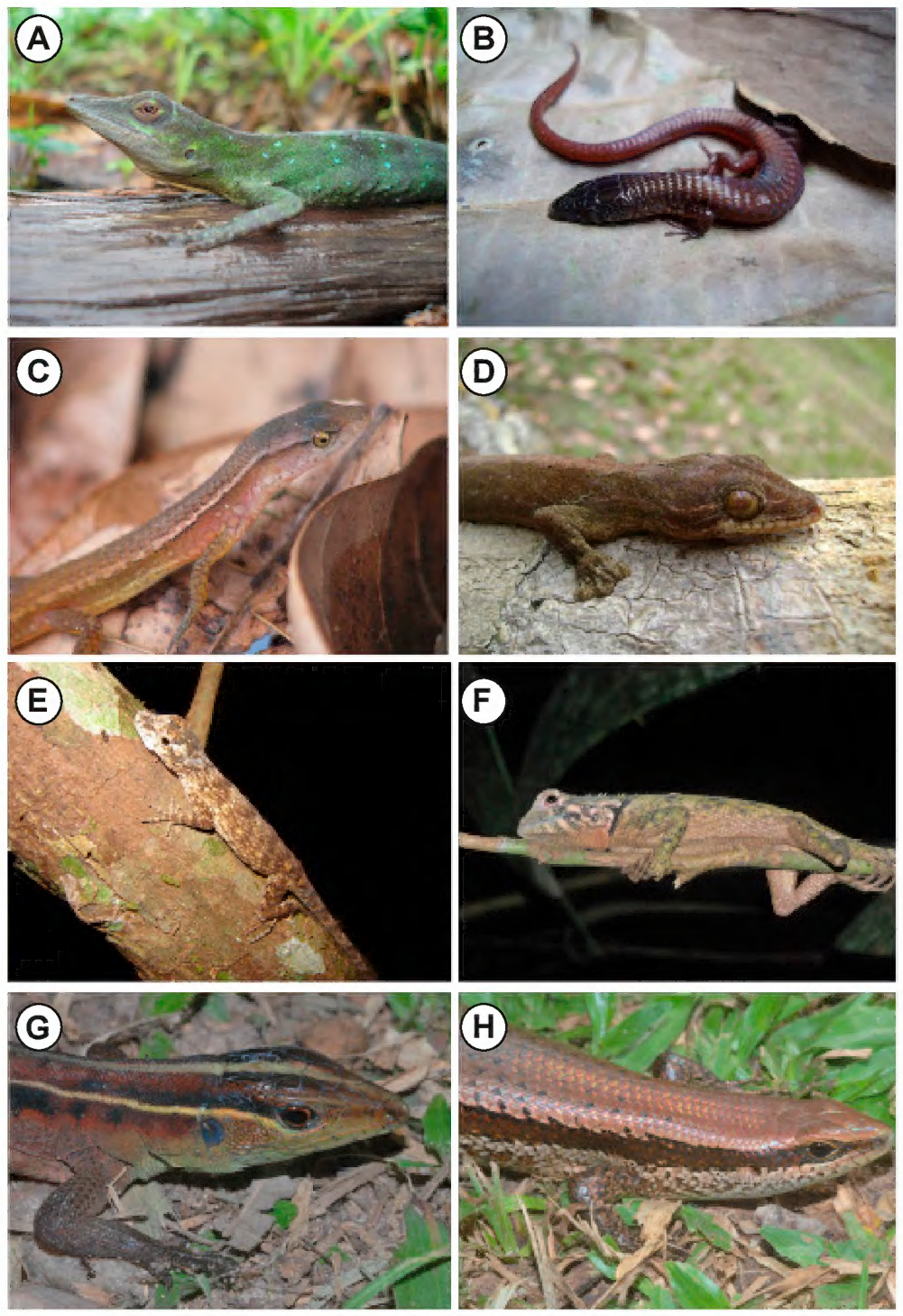

Figure 4. Some species of lizards recorded in the municipality of Juruti, State of Pará: (A) *Dactyloa punctata*; (B) *Arthrosaura reticulata*; (C) *Cercosaura* sp.; (D) *Thecadactylus rapicauda*; (E) *Norops ortonii*; (F) *Plica umbra* (Foto: A. Dourado); (G) *Kentropyx calcarata* (Foto: A. Dourado); (H) *Copeoglossum nigropunctatum* (Foto: A. Dourado).

The number of species recorded in the Juruti region (33 species) corresponds to 35% of all known lizards in the Brazilian Amazon, and 25% of lizards known throughout the Amazon region (Ávila-Pires *et al*. 2007). This number is higher than the number of species recorded in other studies conducted in different herpetofaunistic regions of the Brazilian Amazon (Cunha *et al.* 1985; Martins 1991; Ávila-Pires and Hoogmoed 1997; Bernardi *et al.* 2002; Gardner *et al*. 2007; Macedo *et al*. 2008; Ávila-Pires *et al.* 2009; Ilha and Dixo 2010; Silva *et al.* 2011; Bernardo *et al*. 2012; Pantoja and Fraga 2012) (Table 2). (Table 2).

If we consider the Amazon region as a whole, the number of species recorded in Juruti exceeds locations as the Cusco Amazónico (25 species) in Peru (Duellman 2005) and Santa Cecilia (30 species) in Ecuador (Duellman 1978, 1987). However, the diversity is lower than the observed in studies conducted in the Manaus region (34 species) in Brazil (Duellman 1990; Vitt *et al.* 2008) (Table 2) and in the Iquitos region (36 species) in Peru (Dixon and Soini 1986).

The results presented here contribute to the knowledge on the richness of Amazonian lizards and can serve as a basis for future studies of population, distribution, ecology and environmental impact (deforestation and bauxite mining) on communities of Amazonian lizards.

Table 2. Lizards recorded in Juruti, west of Pará, Brazil and other studies conducted in different regions of the Brazilian Amazon. **1** = Porto Walter (Ávila-Pires *et al.* 2009); **2** = Riozinho da Liberdade (Bernarde *et al.* 2011); **3** = Balbina (Martins 1991); **4** = Manaus (Duellman 1990; Vitt *et al.* 2008); **5** = Rio Ituxi (Ávila-Pires *et al.* 2009; **6** = Rio Preto da Eva (Ilha and Dixo 2010); **7** = Rio Gregório (Pantoja and Fraga 2012); **8** = Carajás (Cunha *et al.* 1985; Nascimento *et al.* 1987); **9** = Caxiuanã (Ávila-Pires and Hoogmoed 1997; Bernarde *et al.* 2002); **10** = Curuá-Una (Ávila-Pires *et al.* 2009); **11** = Barcarena (Silva *et al.* 2011); **12** = Trairão (Mendes-Pinto and Souza, 2011); **13** = Tapirapé (Bernardo *et al.* 2012); **14** = Juruti (This study); **15** = Espigão do Oeste (Macedo *et al.* 2008); **16** = Guajará-Mirim (Ávila-Pires *et al.* 2009)

SPECIES	ACRE		AMAZONAS					PARÁ							RONDÔNIA	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DACTYLOIDAE																
*Dactyloa philopunctatus (*Rodrigues, 1988)			3	+		+										
Dactyloa punctata (Daudin, 1802)	+	+			+			+	6	+	1	+		20	16	+
Dactyloa transversalis (Duméril, 1851)	+	+			+										5	+
Norops auratus (Daudin, 1802)												+				
Norops brasiliensis **(**Vanzolini and Williams, 1970)								+								
Norops chrysolepis (Duméril and Bibron, 1837)			17	+		+	1									
Norops fuscoauratus (D'Orbigny, 1837)	+	+	8	+	+	+	1	+	29	+	16	+		70	26	+
Norops tandai (Ávila-Pires, 2005)	+	+			+		1							85	7	
Norops ortonii (Cope, 1869)	+	+		+	+	+		+	3	+	1			9	+	
Norops trachyderma (Cope, 1876)	+	+					1			+		+				
GEKKONIDAE																
Hemidactylus mabouia (Moreau de Jonnès, 1818)		+		+		+			9		1			1	+	
GYMNOPHTHALMIDAE																
Alopoglossus angulatus (Linnaeus, 1758)	+		3	+	+		6		6		3	+		5	+	+
Alopoglossus atriventris Duellman, 1973	+				+											
Alopoglossus buckleyi (O´Shaughnessy, 1881)		+														
Amapasaurus tetradactylus Cunha, 1970																
Arthrosaura kockii (Lidth de Jeude, 1904)									44				+			
Arthrosaura reticulata (O´Shaughnessy, 1881)			12	+	+	+	2		16	+		+	+	5		+
Bachia gr. *dorbignyi* (Duméril and Bibron, 1839)	+															+
Bachia flavescens (Bonnaterre, 1789)			1	+			1		1	+		+		5		
Bachia peruana (Bonnaterre, 1789)		+					1									
Bachia panoplia Thomas, 1965				+												
Cercosaura argulus Peters, 1863	+	+										+			8	+
Cercosaura eigenmanni (Griffin, 1917)					+										8	+
Cercosaura ocellata Wagler, 1830	+	+			+			+	34	+		+	+		19	
*Cercosaura oshaughnessyi (*Boulenger, 1885*)*	+															
Cercosaura sp.														41		
Colobosaura modesta (Reinhardt and Luetken, 1862)								+								
Gymnophthalmus cf underwoodi Grant, 1958																
Iphisa elegans Gray, 1851	+	+		+		+			1	+		+		16	10	+
Leposoma sp.				+									+			
Leposoma guianense Ruibal, 1952			5	+												
Leposoma osvaldoi Ávila-Pires, 2005												+		23	4	+
Leposoma percarinatum (Müller, 1923)			3	+		+			8	+	3	+		7		+
Neusticurus sp.																
Neusticurus bicarinatus (Linnaeus, 1758)			2	+		+		+								
Neusticurus ecpleopus (Cope, 1876)	+							+		+		+				
Neusticurus juruazensis Ávila-Pires and Vitt, 1998	+															
Neusticurus rudis Boulenger, 1900																
Ptychoglossus brevifrontalis Boulenger, 1912	+	+		+	+							+		1		
Tretioscincus agilis (Ruthven, 1916)			3	+		+		+	18							
HOPLOCERCIDAE																
Enyalioides laticeps (Guichenot, 1855)	+	+			+										2	
Enyalioides palpebralis	+	+														
IGUANIDAE																
Iguana iguana (Linnaeus, 1758)		+		+	+		2	+	2		+		+	2	+	
LEIOSAURIDAE																
Enyalius leechii (Boulenger, 1885)															3	
MABUYIDAE																
Varzea bistriata (Spix, 1825)			6	+	+			+	1					1		
Copeoglossum nigropunctatum (Spix, 1825)	+	+		+	+	+			20	+	11	+	+	38	17	+
PHYLLODACTYLIDAE																
Thecadactylus rapicauda (Houttuyn, 1782)	+		2	+	+			+	12	+	2		+	10	+	+

TABLE 2. ***CONTINUED.***

SPECIES	ACRE		AMAZONAS					PARÁ							RONDÔNIA	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Thecadactylus solimoensis Bergmann and Russell, 2007		+														
POLYCHROTIDAE																
Polychrus marmoratus (Linnaeus, 1758)				+				+		+	4			2		
LEIOSAURIDAE																
Enyalius leechii (Boulenger, 1885)								+		+						
SPHAERODACTYLIDAE																
Chatogekko amazonicus (Andersson, 1918)			11	+	+	+		+	150	+	5	+	+	66	9	+
Gonatodes annularis Boulenger, 1887																
Gonatodes eladioi Nascimento, Ávila-Pires and Cunha, 1987								+					+			
Gonatodes hasemani Griffin, 1917	+	+			+		3							3	29	+
Gonatodes humeralis (Guichenot, 1855)	+	+	18	+		+	4	+	61	+	22	+	+	76	12	+
Lepidoblepharis heyerorum Vanzolini, 1978									1					6		
*Pseudogonatodes*sp							1									
Pseudogonatodes guianensis Parker, 1935	+	+		+		+								14		
Ameiva ameiva (Linnaeus, 1758)	+	+	4	+	+	+	4	+	36	+	3	+	+	21	58	+
Cnemidophorus sp.				+		+										
Cnemidophorus cryptus Cole and Dessauer, 1993									27							
Cnemidophorus lemniscatus (Linnaeus, 1758)								+		+	8					
Crocodilurus amazonicus Spix, 1825				+					4					1		
Dracaena guianensis Daudin, 1802		+														
Kentropyx altamazonica (Cope, 1876)		+			+		4							2		+
Kentropyx calcarata Spix, 1825			18	+		+		+	50	+	15	+	+	45	4	+
Kentropyx pelviceps Cope, 1868	+	+			+										33	
Kentropyx striata (Daudin, 1802)																
Tupinambis longilineus Ávila-Pires, 1995					+									2		
Tupinambis teguixin (Linnaeus, 1758)	+	+	4	+	+	+		+	2			+		2	2	+
TROPIDURIDAE																
Plica plica (Linnaeus, 1758)	+	+		+	+	+		+	12	+		+		14	4	+
Plica umbra (Linnaeus, 1758)	+	+	1	+	+	+	1	+	14	+	7	+	+	15	2	+
Stenocercus fimbriatus Ávila-Pires, 1995		+														
Stenocercus roseiventris Duméril and Bibron, 1837	+														6	
Stenocercus sinesaccus Torres-Carvajal, 2005															+	
Tropidurus gr. *torquatus-hispidus*								+								
Tropidurus hispidus (Spix, 1825)				+												
Uracentron azureum (Linnaeus, 1758)			1	+					1					2		
Uranoscodon superciliosus (Linnaeus, 1758)			8	+	+			+	12	+	4	+	+	12	+	+
TOTAL	**29**	**29**	**20**	**34**	**26**	**20**	**15**	**25**	**28**	**22**	**17**	**23**	**14**	**33**	**29**	**23**

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Appendix. Voucher specimens collected in the municipality of Juruti, state of Pará, Brazil.

Alopoglossus angulatus (MPEG 21853, 25041, 28238, 28239, 28502); *Ameiva ameiva* (MPEG 20790, 20813, 20814, 20825, 20860, 20861, 21849, 25355, 25018, 25019, 25020, 25021, 26470, 27060, 28264, 28487, 28488, 28510, 28504, 28505, 28564); *Norops fuscoauratus* (MPEG 20791, 20793, 20802, 20803, 20804, 20809, 20822, 20840, 20857, 20873, 25401, 25402, 25403, 25404, 25405, 25406, 25407, 25408, 25409, 25410, 25411, 25412, 25413, 25414, 25415, 25416, 25417, 25418, 25419, 25420, 25421, 25422, 25423, 25424, 25425, 25426, 25427, 25428, 25429, 25431, 25432, 25039, 25040, 25119, 25120, 26471, 26472, 26473, 26474, 26475, 26476, 26477, 26478, 27812, 27813, 27814, 27815, 27816, 27065, 27066, 27067, 27068, 27069, 27070, 27071, 28246, 28247, 28248, 28568); *Norops tandai* (MPEG 20785, 20794, 20810, 20811, 20819, 20847, 20854, 20856, 21858, 21854, 21856, 21852, 21851, 25338, 25339, 25341, 25340, 25342, 25343, 25344, 25345, 25346, 25347, 25348, 25349, 25350, 25027, 25028, 25029, 25030, 25102, 25103, 25104, 25105, 25106, 25107, 25108, 25109, 25110, 26479, 6480, 26481, 26482, 26483, 26484, 26485, 26486, 26487, 26488, 26489, 26490, 26491, 26492, 26493, 27818, 27819, 27820, 27821, 27822, 27823, 27824, 27073, 27074, 27075, 27076, 27077, 27078, 27079, 27080, 27081, 27082, 27083, 27084, 27085, 27086, 27087, 28249, 28250, 28251, 28252, 28253, 28254, 28255, 28505, 28578); *Norops ortonii* (MPEG 20866, 20879, 25375, 25376, 25377, 25378, 25379, 27088, 28256); *Dactyloa punctata* (MPEG 20778, 20846, 21863, 25365, 25366, 25367, 25368, 25369, 25370, 25371, 25372, 25373, 25374, 25038, 25131, 27817, 27810, 27089, 28489, 28567); *Arthrosaura reticulata* (MPEG 25351, 25354, 25352, 25353, 28501); *Bachia flavescens* (MPEG 21871, 25385, 25386, 25024, 25121); *Cercosaura* sp. (MPEG 20779, 20781, 20783, 20784, 20823, 20834, 20850, 21870, 21855, 25318, 25319, 25320, 25321, 25322, 25323, 25203, 25334, 25324, 25325, 25326, 25327, 25328, 25329, 25331, 25332, 25333, 25335, 25336,25337, 25330, 25025, 25026, 26494, 26495, 26496, 26497, 26498, 26499, 28240, 28241); *Chatogekko amazonicus* (MPEG 20786, 20792, 20796, 20824, 20835, 20839, 20848, 21874, 21877, 21866, 21879, 21878, 21873, 21876, 25272, 25273, 25274, 25275, 25276, 25277, 25278, 25279, 25280, 25281, 25282, 25283, 25284, 25285, 25286,25287, 25031, 25032, 25033, 25034, 25035, 25036, 25037, 25122, 25123, 27811, 26500, 26501, 26502, 26503, 26504, 26505, 26506, 26507, 26508, 26509, 27825, 27826, 27827, 27828, 27829, 27092, 27093, 27094, 27095, 27096, 27097, 27098, 28257, 28258, 28259, 28571, 28572); *Crocodilurus amazonicus* (MPEG 26510); *Gonatodes hasemani* (MPEG 20787, 25357, 25133); *Gonatodes humeralis* (MPEG 20797, 20806, 20807, 20808, 20878, 21865, 21875, 21868, 21872, 21861, 21869, 21867, 21857, 21860, 25220, 25221, 25222, 25223, 25225, 25226, 25224, 25227, 25228, 25229, 25230, 25231, 25232, 25233, 25234, 25235, 25236, 25237, 25238, 25239, 25240, 25241, 25242, 25042, 25043, 25044, 25045, 25046, 25047, 25048, 25049, 25050, 25051, 25052, 25053, 25111, 25112, 25113, 25114, 25115, 26511, 26512, 26513, 26514, 26515, 26516, 26517, 26518, 26519, 26520, 27830, 27831, 27832, 27833, 27834, 27835, 27100, 27101, 28260, 28261, 28262, 28506); *Hemidactylus mabouia* (MPEG 25292); *Iguana iguana* (MPEG 20869, 25077); *Iphisa elegans* (MPEG 20821, 20832, 25256, 25257, 25258, 25259, 25260, 25261,

26521, 28242, 28243, 28244, 28491, 28490, 28507, 28565); *Kentropyx altamazonica* (MPEG 20868, 20870); *Kentropyx calcarata* (MPEG 20782, 20799, 20800, 20801, 20805, 20818, 20820, 20831, 20838, 20841, 20842, 20843, 20852, 20862, 20864, 21862, 21864, 25309, 25310, 25311, 25312 25313, 25314, 25317, 25011, 25012, 25014, 25015, 25016, 25013, 25017, 25124, 25125, 25126, 25127, 25128, 25129, 26522, 26523, 26524, 27836, 27837, 28265); *Lepidoblepharis heyerorum* (MPEG 21859, 25243, 25244, 25245, 25246, 25247); *Leposoma osvaldoi* (MPEG 20780, 20788, 20789, 20798, 20827, 20830, 20855, 25248, 25249, 25250, 25251, 25252, 25253, 25254, 25255, 26525, 26526, 26527, 28245, 28508, 28492, 28576, 28577); *Leposoma percarinatum* (MPEG 20872, 20876, 25267, 25268, 25269, 25270, 25271); *Varzea bistriata* (MPEG 20874); *Copeoglossum nigropunctatum* (MPEG 20795, 20815, 20817, 20844, 20851, 20867, 20877, 20871, 21847, 21848, 25293, 25294, 25295, 25296, 25297, 25298, 25299, 25300, 25301, 25302, 25022, 25132, 26528, 26529, 26530 26531, 26532, 26533, 26534, 26535, 26536, 27102, 28493, 28494, 28509, 28509, 28569, 28570); *Plica plica* (MPEG 20812, 20816, 20829, 20836, 20849, 20853, 20858, 20859, 25308, 26537, 26538, 28266, 28495, 28563); *Plica umbra ochrocollaris* (MPEG 20828, 20833, 20845, 20863, 20880, 20881, 25381, 25023, 25134, 26539, 27839, 27103, 28267, 28497, 28496); *Polychrus marmoratus* (MPEG 25387, 25388); *Pseudogonatodes guianensis* (MPEG 20865, 25262, 25263, 25264, 25266, 25265, 25054, 25055, 26540, 27104, 28263, 28511, 28573, 28574, *Ptychoglossus brevifrontalis* (MPEG 26541); *Thecadactylus rapicauda* (MPEG 20875, 25358, 25359, 25130, 26542, 27105, 28499, 28512, 28498, 28566); *Tupinambis longilineus* (MPEG 25382, 25383); *Tupinambis teguixin* (MPEG 21880, 25384); *Uracentron azureum* (MPEG 25396, 28500); *Uranoscodon superciliosus* (MPEG 25356, 25116, 25117, 26543, 26544, 26545, 27840, 27841, 27842, 27106, 27107, 28268).